Claims

1. A vaccine composition suitable for administration to a vertebrate host, including man, which comprises:

(a) a polynucleotide vaccine component comprising at least one polynucleotide encoding at least one antigen, such that introduction of said formulation into said vertebrate host results in expression of a biologically effective amount of said antigen or antigens so as to induce a prophylactic or therapeutic immune response;

(b) a protein antigen vaccine component comprising at least one protein antigen selected from the group of model protein antigens and vaccine protein antigens; and

(c) a mineral-based, negatively charged adjuvant.

2. A vaccine composition according to claim 1 wherein said mineral-based negatively charged adjuvant is an aluminium salt or a calcium salt.

3. A vaccine composition according to claim 2 wherein said aluminium or calcium salt is selected from the group consisting of aluminium phosphate, aluminium hydroxyphosphate, phosphate-treated aluminium hydroxide, calcium phosphate, calcium hydroxyphosphate, and phosphate-treated calcium hydroxide.

4. A vaccine composition according to any one of claims 1 to 3 wherein said group of model protein antigens range from acidic IEP proteins to alkaline IEP proteins.

5. A vaccine composition according to any one of claims 1 to 4 wherein said group of vaccine protein antigens includes a surface protein or a core protein of HBV, a de-toxified toxin from the bacteria *Clostridium tetani* (i.e. tetanus toxoid), a de-toxified toxin from the bacteria *Clostridium botulinus* (i.e. botulinus toxoid), and a de-toxified toxin from the bacteria *Corynebacterium diphtheriae* (i.e. diphtheria toxoid).

6. A vaccine composition according to any one of claims 1 to 4 wherein said group of vaccine protein antigens includes protein antigens derived from inactivated poliovirus.

7. A vaccine composition according to any one of the preceding claims, wherein said mineral-based negatively charged adjuvant is preincubated or subsequently

mixed with said at least one protein antigen vaccine component prior to being formulated with said polynucleotide vaccine component.

8. A kit comprising a vaccine composition as defined in any one of the claims 1-7 in a unit dose form for administration to a vertebrate recipient, including man.

9. Use of a mineral-based, negatively charged adjuvant as a component in a combined DNA/protein-based vaccine composition as defined in any one of claims 1-7.